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EXAMINER
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE _3_ MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
  Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1) ☒ Responsive to communication(s) filed on _23 December 2008_.

2a) ☒ This action is **FINAL**.　　2b) ☐ This action is non-final.

3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4) ☒ Claim(s) _1,5-8,11-13,17-19,23 and 24_ is/are pending in the application.

　　4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5) ☐ Claim(s) _____ is/are allowed.

6) ☒ Claim(s) _1,5-8,11-13,17-19,23 and 24_ is/are rejected.

7) ☐ Claim(s) _____ is/are objected to.

8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9) ☐ The specification is objected to by the Examiner.

10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.

　　Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

　　Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

　　a) ☐ All　b) ☐ Some * c) ☐ None of:

　　　　1. ☐ Certified copies of the priority documents have been received.

　　　　2. ☐ Certified copies of the priority documents have been received in Application No. _____.

　　　　3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

　　* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.

4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

1.   This office action is in response to the amendment filed on Dec. 23 2008.

2.   Claims 1, 7, 13, and 19 are amended

3.   Claims 1, 5-8, 11-13, 17-19, 23 and 24 are pending in this application.

Claim Rejections - 35 USC § 103

4.   The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all

obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in
> section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are
> such that the subject matter as a whole would have been obvious at the time the invention was made to a person
> having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the
> manner in which the invention was made.

5.   Claims 1, 5-8, 11-13 and 17-18 are rejected under 35 U.S.C. 103(a) as being unpatentable

over Polak (U.S. Patent No. 6,226,627 B1 hereinafter "Polak"), in view of Li (U.S. Patent No.

6,625,500 B1 hereinafter "Li").

Per claims 1 and 13

Polak discloses

A method of instructing a computer program to self-optimize, said method comprising:

- inputting a selection command that selects one function from a list of pre- selected

     functions for input into said computer program at a point of choice determined by a

     programmer (Col.7 lines 54-59 "*If multiple actions are enabled, the dependency action

     system uses a selection rule to determine which of the enabled actions is to be executed.

     It is possible to use a selection rule based on random choice. A policy can be pre-*

established that prescribes which action of a set of enabled actions is to be selected for

execution." & col.12 line 66 ~ col.13 line 6 "The enabled action selection rule

determines which of the enabled actions 620 and 622 is tried first. Similarly, if the action

620 does not update the storage location 632, but updates the storage location 630, the

selection rule determines whether the action 640 or the action 622 is used for recovery.

This behavior can be change by the designer of the dependency action system by adding

additional dependencies. ").

▪ allowing a learning protocol comprised of learning instructions in said computer program

(col.4 lines 45-50 *"The method and system of this invention are derived from biological*

systems and organisms that achieve resilience and adaptability through redundant

functional components, planning the use of these components to achieve a given task, and

learning appropriateness of components from experience.") to track and reward said one

function that is selected and to determine an approximate optimal policy of choice of

operation of said computer program based on said selection command (col.8 lines 49-57

"An enabled action selection rule is used to select one of several enabled actions for

execution. Different selection rules can be used, including a trivial selection rule that

picks one of the enabled actions at random. This invention specifies an enabled action

preference policy that is described below with respect to FIG. 13.").

But Polak does not disclose

▪ each function from said list of pre- selected functions is associated with a reward

However, Li explicitly discloses

- wherein each function from said list of pre- selected functions is associated with a reward (col.16 lines 5-9 *"the computer can also provide multiple choices of simple reward-risk choices from the highly efficient experiments for the manager to select to decide, e.g., whether to continue the next self-optimizing cycle."*).

- Therefore, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to modify teaching of Polak with the teachings of Li to include each function from said list of pre- selected functions is associated with a reward in order to provide a self-optimizing machine or method to generate computer code in real time into the computer-generated knowledge bases.

Per claims 5, 17

the rejection of claims 1 and 13 are incorporated respectively and Li further discloses

- comprising inputting a rule command that establishes a rule for said computer program on how to determine said approximate optimal choice of operation (col.16 lines 55-57 *"self-optimizing machine readily and automatically generates these and other similar rules in computer-coded form ready for use as instant machine expert systems..."*).

Per claims 6, 18

the rejection of claims 1 and 13 are incorporated and Li further discloses

- comprising inputting a reward command that provides a reward, at a point of choice, determined by a programmer, in said computer program, for said one function selected by said selection command, which results in said approximate optimal choice for self-

optimizing said computer program (col.16 lines 5-9 *"the computer can also provide multiple choices of simple reward-risk choices from the highly efficient experiments for the manager to select to decide, e.g., whether to continue the next self-optimizing cycle."*).

Per claim 7

Polak discloses

A method of optimizing a computer program, said method comprising:

- specifying at least one point of choice, determined by a programmer, in said computer program (col.8 lines 11-15 *"This invention preferably uses a specific type of selection rule, called a preference policy, that is based on a preference relation that specifies if one action is to be preferred over another action"*).

- defining a set of alternate choices at each point of choice ([Abstract] *"if one action fails to produce a value to a storage location, other alternative actions may still be enabled and can be executed."*), wherein said set of alternate choices include operational choices comprises:

- inputting a selection command that selects one function from a list of pre-selected functions into said computer program (col.7 lines 54-57 *"If multiple actions are enabled, the dependency action system uses a selection rule to determine which of the enabled actions is to be executed. It is possible to use a selection rule based on random choice."*)

- allowing a learning protocol comprised of learning instructions in said computer program (col.4 lines 45-50 *"The method and system of this invention are derived from biological*

systems and organisms that achieve resilience and adaptability through redundant

functional components, planning the use of these components to achieve a given task, and

learning appropriateness of components from experience.") to track and reward said one

function that is selected to determine an approximate optimal operation of said computer

program based on said selection command (col.8 lines 49-57 "*An enabled action*

selection rule is used to select one of several enabled actions for execution. Different

selection rules can be used, including a trivial selection rule that picks one of the enabled

actions at random. This invention specifies an enabled action preference policy that is

described below with respect to FIG. 13.").

But Polak does not disclose

- setting at least one feedback point for each point of choice and each function from said

  list of pre-selected functions is associated with a reward.

However, Li discloses

- setting at least one feedback point for each point of choice (col.4 lines 46-52 "*An*

  additional object of the invention is to provide self-optimizing machine and method which

  actively computes, and automatically sets at, the instantaneous optimal combinations of

  the many relevant variables in various categories, with instant feed-back to supply data

  1for immediate replanning, retesting, and reoptimiizng").

- wherein each function from said list of pre-selected functions is associated with a reward

  (col.16 lines 5-9 "*the computer can also provide multiple choices of simple reward-risk*

  choices from the highly efficient experiments for the manager to select to decide, e.g.,

  whether to continue the next self-optimizing cycle.").

- Therefore, it would have been obvious to a person of ordinary skill in the art at the time
  the invention was made to modify teaching of Polak with the teachings of Li to include
  foregoing descriptions in order to provide a self-optimizing machine or method to
  generate computer code in real time into the computer-generated knowledge bases.

Per claim 8

the rejection of claim 7 is incorporated and Polak further discloses

comprising allowing a learning protocol in said computer program to determine an approximate optimal operation of said computer program based on said specifying (col.8 lines 11-12 "*This invention preferably uses a specific type of selection rule, called a preference policy*", defining (col.5 lines 59-64 "*…The actions 20 define the functional components of the dependency action system in terms of the data that is required and the data that is produced.*", and setting (col.13 lines 13-15 "*The dependency action system control routine begins in step S1000. Control then continues to steps 1100, where the dependency action system is initialized by setting all storage locations to "empty".*").

Per claim 11

the rejection of claim 8 is incorporated and Polak further discloses

set of alternate choices include operational choices, further comprising:

- inputting a rule command into said computer program, wherein said rule command
  establishes a rule on how to determine said approximate optimal operation (col.8 lines
  11-15 "*This invention preferably uses a specific type of selection rule, called a preference*

policy, that is based on a preference relation that specifies if one action is to be preferred

over another action").

Per claim 12

the rejection of claim 8 is incorporated and Li further discloses

set of alternate choices include operational choices, and wherein said method further comprises:

- inputting a reward command into said computer program at a point of choice, determined
  by a programmer, wherein said reward command provides reward in said computer
  program, which results in said approximate optimal choice for optimizing said computer
  program (col.16 lines 5-9 *"the computer can also provide multiple choices of simple
  reward-risk choices from the highly efficient experiments for the manager to select to
  decide, e.g., whether to continue the next self-optimizing cycle."*).

6.   Claims 19, 23-24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Polak,

in view of Li and further view of Christensen et al. (U.S. Patent No. 5,333,304 A1 hereinafter

"Christensen").

Per claim 19

Polak discloses

A computer system comprising:

- Processor adapted to execute a learning protocol in said computer program to track and
  reward said one function that is selected and determine an approximate optimal operation
  of said computer program based on at least said selection command (col.8 lines 49-57

"An enabled action selection rule is used to select one of several enabled actions for execution. Different selection rules can be used, including a trivial selection rule that picks one of the enabled actions at random. This invention specifies an enabled action preference policy that is described below with respect to FIG. 13.")

- input a selection command at a point of choice, determined by a programmer, into a computer program that runs a computer, said selection command selecting one function from a list of pre-selected functions for input into said computer program (Col.7 lines 54-59 *"If multiple actions are enabled, the dependency action system uses a selection rule to determine which of the enabled actions is to be executed. It is possible to use a selection rule based on random choice. A policy can be pre-established that prescribes which action of a set of enabled actions is to be selected for execution."* & col.12 line 66 ~ col.13 line 6 *"The enabled action selection rule determines which of the enabled actions 620 and 622 is tried first. Similarly, if the action 620 does not update the storage location 632, but updates the storage location 630, the selection rule determines whether the action 640 or the action 622 is used for recovery. <u>This behavior can be change by the designer</u> of the dependency action system by adding additional dependencies."*).

Li discloses

- wherein each function from said list of pre-selected functions is associated with a reward (col.16 lines 5-9 *"the computer can also provide multiple choices of simple reward-risk choices from the highly efficient experiments for the manager to select to decide, e.g., whether to continue the next self-optimizing cycle."*).

But both Polak and Li do not disclose

- a pre-compiler that inputs a selection command

However, Christensen discloses

- a pre-compiler that inputs a selection command (col.2 lines 16-26 "*A software
  application to be evaluated is compiled utilizing a compiler application which inserts at
  least one prelude routine command during compiling which is utilized to invoke the
  prelude routine utilized upon each entry to a procedure within the software application.
  A command invoking the evaluation function is inserted into the prelude routine such that
  each entry to a procedure within the software application under evaluation will result in
  the storage of execution information at that point.* ").

- Therefore, it would have been obvious to a person of ordinary skill in the art at the time
  the invention was made to combine teachings of Polak and Li and further include a pre-
  compiler that inputs a selection command by the teachings of Christensen in order to
  provide a method for evaluating software application performance utilization a compiler
  application ([abstract]).

Per claim 23

the rejection of claim 19 is incorporated Li further discloses

- input a rule command into said computer program that runs on said computer, said rule
  command established a rule for said computer program on how to determine said
  approximate optimal choice of operation (col.16 lines 55-57 "*self-optimizing machine
  readily and automatically generates these and other similar rules in computer-coded
  form ready for use as instant machine expert systems…*").

Per claim 24

the rejection of claim 19 is incorporated Li further discloses

- input a reward command that provides a reward, at a point of choice in said computer

   program which runs on said computer, for said one function selected by said selection

   command, which results in said approximate optimal choice for self- optimizing said

   computer program (col.16 lines 5-9 *"the computer can also provide multiple choices of*

   simple reward-risk choices from the highly efficient experiments for the manager to select

   to decide, e.g., whether to continue the next self-optimizing cycle.").

Response to Arguments

Applicant's arguments filed on Dec. 23 2008 have been fully considered but they are not

persuasive.

- In the remarks, Applicant argues that:

(a)   Claims 1, 7, 13 and 19, Polak fails to disclose, teach or suggest "inputting a selection

command that selects one function from a list of pre- selected functions for input into said

computer program at a point of choice determined by a programmer" and "allowing a learning

protocol comprised of learning instructions".

(b)   Li fails to remedy "each function from said list of pre-selected functions is associated

with a reward" of Polak

Examiner's response:

(a)   Examiner recited different paragraph of Polak to clarify those features in independent

claims. Polak discloses inputting a selection command that selects one function from a list of

pre- selected functions for input into said computer program at a point of choice determined by a

programmer (Col.7 lines 54-59 *"If multiple actions are enabled, the dependency action system*

uses a selection rule to determine which of the enabled actions is to be executed. It is possible to

use a selection rule based on random choice. A policy can be pre-established that prescribes

which action of a set of enabled actions is to be selected for execution." & col.12 line 66 ~

col.13 line 6 *"The enabled action selection rule determines which of the enabled actions 620 and*

622 is tried first. Similarly, if the action 620 does not update the storage location 632, but

updates the storage location 630, the selection rule determines whether the action 640 or the

action 622 is used for recovery. This behavior can be change by the designer of the dependency

action system by adding additional dependencies."). Also, Polak further discloses allowing a

learning protocol comprised of learning instructions in said computer program. In the

background of Polak's invention (col.1 lines 8-11 *"This invention is directed to methods and*

systems for building and executing complex software. In particular, this invention relates to self-

optimizing software employing learning and planning techniques." & col.4 lines 45-50 *"The*

method and system of this invention are derived from biological systems and organisms that

achieve resilience and adaptability through redundant functional components, planning the use

of these components to achieve a given task, and learning appropriateness of components from

experience.") Those learning of software or component are implicitly comprised of learning

instructions.

(b)   Li discloses "each function from said list of pre- selected functions is associated with a

reward" (col.16 lines 5-9 *"the computer can also provide multiple <u>choices of simple reward-risk</u>*

choices from the highly efficient experiments for the manager to select to decide, e.g., whether to

continue the next self-optimizing cycle.")

Conclusion

7.   **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time

policy as set forth in 37 CFR 1.136(a).

       A shortened statutory period for reply to this final action is set to expire THREE

MONTHS from the mailing date of this action. In the event a first reply is filed within TWO

MONTHS of the mailing date of this final action and the advisory action is not mailed until after

the end of the THREE-MONTH shortened statutory period, then the shortened statutory period

will expire on the date the advisory action is mailed, and any extension fee pursuant to 37

CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event,

however, will the statutory period for reply expire later than SIX MONTHS from the mailing

date of this final action.

       Any inquiry concerning this communication or earlier communications from the

examiner should be directed to Junchun Wu whose telephone number is 571-270-1250. The

examiner can normally be reached on 8:00-17:00 M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's

supervisor, Wei Zhen can be reached on 571-272-3708. The fax phone number for the

organization where this application or proceeding is assigned is 571-273-8300.[1]

Information regarding the status of an application may be obtained from the Patent Application

Information Retrieval (PAIR) system. Status information for published applications may be

obtained from either Private PAIR or Public PAIR. Status information for unpublished

applications is available through Private PAIR only. For more information about the PAIR

system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR

system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would

like assistance from a USPTO Customer Service Representative or access to the automated

information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

JW

/Wei Y Zhen/

Supervisory Patent Examiner, Art Unit 2191

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[1]